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TRIZ (Theory of Inventive Problem Solving) Template

What is TRIZ (Theory of Inventive Problem Solving) Template?

TRIZ (Theory of Inventive Problem Solving) is a methodology developed by Genrich Altshuller, a Russian engineer and scientist, to help solve complex problems and create innovative solutions. The TRIZ template, also known as the "Altshuller's 40 Principles," consists of 76 standard solutions (STSs) and 40 inventive principles that can be applied to various problem-solving scenarios.

The TRIZ template is designed to help engineers, scientists, and innovators solve complex problems by identifying the underlying contradictions and using the inventive principles to overcome them. The template includes:

1. **Contradiction analysis**: Identifying the main contradictions (incompatibility of opposing requirements) in the problem.
2. **Inventive principle selection**: Choosing the relevant inventive principles from the 40 Altshuller's principles to address each contradiction.
3. **Solution development**: Applying the selected inventive principles to create innovative solutions.

The TRIZ template is organized into three main categories:

1. **40 Inventive Principles**: These principles are designed to overcome specific types of contradictions, such as:
    - Separation (separating conflicting components)
    - Combination (combining separate components)
    - Transfer (transferring resources or energy between components)
2. **76 Standard Solutions** (STSs): These solutions are pre-defined and can be applied directly to solve specific problems.
3. **Contradiction Analysis**: This involves identifying the main contradictions in the problem, such as:
    - Technical contradiction: conflicting technical requirements
    - Physical contradiction: conflicting physical laws or principles

The TRIZ template is a powerful tool for solving complex problems and creating innovative solutions. It has been applied to various fields, including engineering, science, technology, and business, to name a few.

Here's an example of how the TRIZ template can be used:

Problem: Designing a more efficient and cost-effective solution for a complex mechanical system.

1. Identify contradictions:
    - High efficiency vs. high cost (technical contradiction)
    - Compact design vs. easy maintenance (physical contradiction)
2. Select inventive principles:

- Separation (separating conflicting components, e.g., separating the motor from the transmission)
- Combination (combining separate components, e.g., combining multiple gears into a single unit)
3. Apply solutions:
    - Design a modular system with interchangeable components to reduce production costs and improve maintenance.
    - Use advanced materials or 3D printing to create complex geometries that optimize efficiency and compactness.

By following the TRIZ template, engineers and innovators can develop innovative solutions that overcome complex problems and create competitive advantages.

problem, innovation, problem-solving, acme, engineering, science, business, technology, management

TRIZ (Theory of Inventive Problem Solving) Template

1. Problem Definition

- **Problem Statement:** Describe the problem you are facing.
- **Desired Outcome:** What do you want to achieve?

2. Analysis of the Problem

- **System Analysis:** Outline the system related to your problem.
- **Contradictions:** Identify any contradictions present in the problem.

3. TRIZ Principles

- **Relevant TRIZ Principles:** List TRIZ inventive principles that may apply to your situation.
    1. Principle 1: [Description]
    2. Principle 2: [Description]
    3. Principle 3: [Description]
    4. Principle 4: [Description]
    5. Principle 5: [Description]

4. Ideal Final Result (IFR)

- **Define the IFR:** Describe what the ideal solution would look like.

5. Resources

- **Existing Resources:** What resources (materials, tools, knowledge) do you have at your disposal?
- **Potential Constraints:** What limitations should be considered?

6. Solution Generation

- **Brainstorming Ideas:** Generate ideas based on the TRIZ principles and analysis.
  - Idea 1: [Description]
  - Idea 2: [Description]
  - Idea 3: [Description]

7. Evaluation of Solutions

- **Criteria for Evaluation:** Define how you will evaluate the generated solutions.
- **Selected Solutions:** List the solutions that best meet the criteria.

8. Implementation Plan

- **Action Steps:** Outline the steps needed to implement the selected solutions.
- **Timeline:** Create a timeline for implementation.

9. Review and Iterate

- **Monitor Outcomes:** Define how you will monitor the outcomes of the implemented solutions.
- **Feedback Loop:** How will you gather feedback and iterate on the solutions?
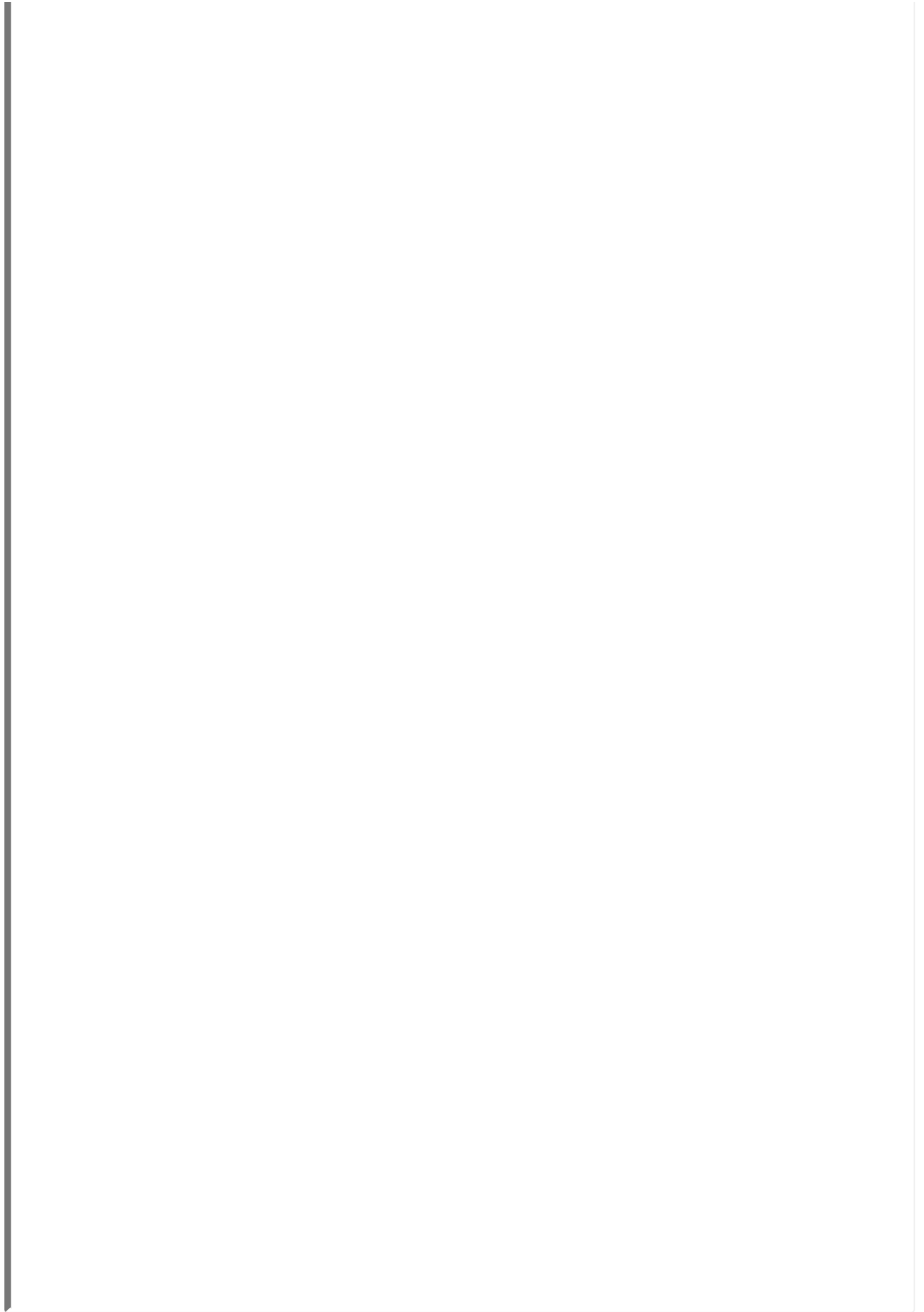
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